



UPS Aviation Technologies

UPS AVIATION TECHNOLOGIES INC.
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Service Bulletin

Bulletin No. SB2001-006 **Rev.** -- **Title:** **MX20 Replacement Procedure**

☐ **MANDATORY** ☐ **ROUTINE MAINTENANCE** ☒ **SERVICE NOTE** ☐ **OTHER**

DISTRIBUTION: ☒ **CAPSTONE INSTALLATION CENTERS** ☐ **REPAIR STATION JC6R634N ONLY**

EFFECTIVITY

All Capstone System aircraft.

REASON

This Service Bulletin provides instructions for the unit replacement of the MX20 and system configuration for the MX20. Critical FAA surveillance configuration information (ICAO address) must be initialized upon unit replacement.

DESCRIPTION

Replace the MX20 unit and perform MX20 system configuration as described in this bulletin. Ensure the ICAO address code is set to the appropriate value.

REQUIREMENTS

This Service Bulletin concerns Capstone System installations only.

WARRANTY INFORMATION

N/A

REGULATORY APPROVALS

FAA Approved.

LABOR

Approximately 0.25 hours.

TECHNICAL REFERENCES

Capstone System Installation Manual, 560-1024-xx

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PROCEDURE

All power to the Capstone System must be turned off. Remove the unit from mounting bracket. Place new unit into mounting bracket. Perform MX20 system configuration as described below.

Unit Removal

1. Before removing the old unit, write down the eight-number ICAO address. The ICAO address is available for viewing on the TRAF page of the MX20. The same ICAO address must be entered into the new unit.
2. Unscrew front mounting screw from the MX20 with the 3/32" hex driver provided in the original installation kit. The unit will be loosened and then may be pulled from the frame. No special extraction tools are required.
3. Slide MX20 out from the mounting bracket.

Unit Replacement

1. Slide the MX20 into the mounting bracket.
2. **Hand-tighten** the threaded screw shaft using the 3/32" hex driver. The unit will be pulled into the frame by the shaft and the connectors will fully engage. The back of the bezel must only be flush to the mounting tube.



MX20 System Configuration

The Capstone system requires the following MX20 configuration:

1. Turn on power to the MX20.
2. Immediately after the self-test is complete, press line select keys 1, 4, and 6 in sequence (where 1 is the top line select key, 4 is the fourth key down, and 6 is the lower most line select key). Do not press any other buttons before pressing the 1, 4, 6 line select key sequence.

3. Press the function key until the INSTL function is present. If INSTL function is not found, restart the unit and repeat step 2.
4. Select the INSTL function by pressing the smart key directly below the INSTL label. There are three functions to check: Enable/Disable Functions (FUNC), External Data Sources (DATA), and Miscellaneous Setup options (MISC). The MISC page contains critical setup parameters that must be configured, such as the ICAO address. The Enable/Disable Functions will be the first screen to appear.

Notes

MX20 power must be cycled before configuration changes will take affect.

After a configuration change, a message will appear on the screen telling you to wait 30 seconds before turning off power. You may continue to make configuration changes without pausing; however, do not turn off power to the MX20 until waiting 30 seconds after the last configuration/ setting change.

Enable/Disable Functions

1. Ensure the Enable/Disable Functions page of the MX20 has the desired configuration. Modifications can be made using the line select keys. Press the Next Page line select key to view additional functions.

Enable all items on all function pages except Lightning.

2. Press the Next Page line select key to view additional functions.

3. Press the Next Page line select key to view additional functions.

External Data Source

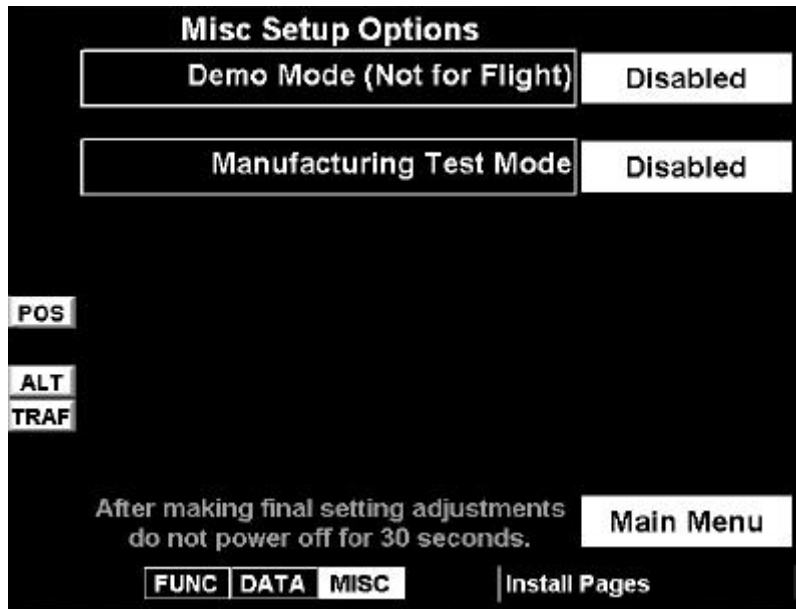
1. Press the DATA smart key while still in the INST function.
2. Ensure the External Data Sources page of the MX20 has the following configuration. Modifications can be made using the line select keys. Port allocations must match the configuration as shown in the following figures. Set port source to None for Lightning Source.

3. Press the Next Page line select key to view additional functions.

Miscellaneous Setup Options

1. Press the MISC smart key while still in the INST function.
2. **Important.** Ensure the Misc Setup Options page of the MX20 is configured for the specific aircraft. Modifications are made using the line select keys. You must enter the appropriate ICAO and flight ID values. The ICAO address must be set for aircraft compliance with FAA guidelines for aircraft participation in the Capstone program.

Misc Setup Options		
Ownship Broadcast ICAO	XXXXXXXX	→ See Step 3
Ownship Broadcast Flight ID	N1234	→ See Step 4
Ownship Broadcast Category	Small	→ See Step 5
Ownship Symbol	Single Engine	→ See Step 6
Terrain Clearance Mode	Special	→ See Step 7
Next Page		
FUNC DATA MISC Install Pages		



3. Enter the aircraft specific eight-number ICAO address used by the old unit. If the ICAO address is not available or this is not a replacement unit, obtain ICAO address of the aircraft from the FAA. The ICAO address is a unique eight-number code assigned to each aircraft. For U.S. registered aircraft, it will be necessary to have a specific address code assigned. Contact the Capstone office in Anchorage at: 907-271-1338 for these address codes.
4. Enter in Flight ID. The tail number is an example of a convenient Flight ID.
5. Enter Category Code.

Category Code	Aircraft Weight
Small	< 15,500 lbs.
Medium	15,500 to 75,000 lbs.
Large	75,000 to 190,000 lbs.
Extra Large	190,000 to 300,000 lbs.
Heavy	> 300,000 lbs.
High Performance	> 5g acceleration and > 400 kts

6. Enter in Ownship Symbol (Single Engine, Twin, or Jet).
7. Set the Terrain Clearance Mode to **Special** for the Capstone installation.
8. Demo Mode and Manufacturing Test Mode **must be disabled** for all aircraft installations.
9. Press Enter/Menu to confirm all software settings.

After the 30-second waiting period, turn the MX20 power off **to apply all software setup settings**.

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CONFIGURATION RECORD

Make appropriate notations in the aircraft logs and equipment list as necessary.

RETURN TO SERVICE PROCEDURE

Perform the post-installation system checkout as described below for the Datalink and MX20.

MX20 Check

1. Turn on power to the MX20.
2. Verify all self-tests pass on the main startup screen.
3. Verify the expiration date on the NavData database.
4. Verify the Terrain and Geography databases are applicable to the area of intended flight (CONUS, Alaska, etc.).
5. View the TRAF page and ensure that the correct ICAO address is present.
6. Press the MSG “smart key” and verify that “Unit configured for Special Terrain Mode” **IS** displayed. Ensure that a “Not Configured Properly” message is **NOT** displayed.

Datalink Check

The Capstone system requires a datalink check to verify that the UAT is working properly.

1. Turn power on to the MX20 and to the UAT. Ensure that the UAT circuit breaker is closed.
2. Allow the MX GPS engine to obtain a fix. Verify that the POS warning is extinguished.
3. Wait approximately 30 seconds to verify that the TRAF warning does not display.

